THE NEED FOR GREATER PRODUCT DIFFERENTIATION IN THE GRAIN INDUSTRY - - FROM A USDA PERSPECTIVE

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Abstract

The marketing structure of the U.S. food and feed industry is undergoing significant change as it moves from a supply-driven to a consumer-driven market. The emergence of value-enhanced commodities and a niche market for non-biotech grain has created a greater need to differentiate products in the grain handling system. In light of these changes, the U.S. Department of Agriculture (USDA) sought public comment, via an Advance Notice of Proposed Rulemaking (ANPR), on how USDA can continue to foster the marketing of grains, oilseeds, fruits, vegetables, and nuts in this evolving marketplace. Respondents expressed a clear need for USDA to facilitate the marketing of products, not through the traditional grades and standards, but through the exchange of information and services concerning analytical testing and various marketing mechanisms, such as identity preservation and process verification.

The Changing Market

Changing consumer preferences, scientific advances, and global trade are changing the grain business. Companies are establishing coordinated food systems to more directly link farmers to consumers, and to simply achieve the critical mass needed to compete in today's global market. We have moved away from a push-driven market and are entering a pull-driven grain market. Food manufactures want the right quality at the right time to improve food or feed processing, improve the performance or nutritional value of a finished product, and to simply better meet the demands of consumers.

The efficiency of our food and feed system has enabled U.S. agriculture to provide an abundant, safe, and affordable food supply to U.S. citizens and to be a dominant supplier of food to the rest of the world's population. To retain this position in today's highly competitive world market, companies are adopting new technologies and business strategies. The commodity system is extremely efficient at moving vast amounts of grains from farmer to the ultimate end-user; however, the commingling nature of the commodity market minimizes the ability of the system to extract the value of any specific quality attribute. Consequently, we see many in the industry looking for a balance between the efficiencies of the commodity market and the added value of greater product differentiation. That is, what is the optimum business plan for bringing a value added grain to market.

Many predict the continued evolution in the market infrastructure to accommodate greater product differentiation. How this evolves will differ between food, feed, export and domestic markets.

> "Our IP has grown from nothing three years ago to a fairly good size today. Within three to five years, half our total grain usage will be identity preserved."
> (Ron Olson, General Mills Grain Divisions, September 2001)

> "In terms of the export market we see approximately three percent being in some fashion identity preserved. I see that increasing … to as much as 30 percent." (Ruth Kimmelshue, North American Grain and Oilseed, Cargill, September 2001)

> "I do not see the niche market comprising more than 10 percent in the next five years. The majority of corn and soy produced today is for the feed market, and feed markets are not very amenable to high margins." (Nicholas Kalaitzandonakes, University of Missouri, September 2001)

The mainstream commodity market continues to serve the primary needs of the food and feed industry. End users rely on grade, class, and special factors to define the specific quality needed for their individual processing and final products. Over the years, the specifications by some end users have become more specialized and demanding as they strive to improve their processing efficiency or meet the specific needs of a customer. Whenever possible, the industry extracts these special traits from the main commodity stream -- relying on the established infrastructure as much as possible. However, some companies find it necessary to reach further back into the marketing system and contract with producers to grow a specific variety or use specific agronomic practices. This increases costs and complicates the logistics for the food manufacturing industry since product demand must be forecasted further in advance.

Let's examine how the differentiation of grain is changing the market, both the mainstream commodity market and the evolving specialty product market. For the mainstream commodity market, we see greater differentiation of quality. New factor specifications or more stringent requirements, such as wheat dockage or sprout damage have been imposed on the export market resulting in market signals being sent back through the supply chain. Private importers rather than government buying agents are driving this demand for more specific quality and are timing their purchases to minimize destination storage needs -- they want just-in-time supply services. This has resulted in greater logistical challenges for the U.S system.

For example, in 1990, 70% of the export vessels carried only one lot of grain; today only 55% of the vessels carry one lot. The number of vessels carrying two lots increased from 19% in 1990 to 26% today. This pattern is consistent, a steady increase in the number of lots loaded aboard export vessels over time. In 1990, only 0.7% of the vessels carried 5 or more lots, today 3.4% do.

If we look at the specialty grain market, producers are responding to market signals and producing more value added products. In 1996, little over 2 million acres were devoted to specialty corn according to the U.S. Grains Council. By 2000, this had nearly doubled to just under 4 million acres. We see similar potential in the soybean market. In addition to the food quality beans used for tofu, miso and alike, a variety of other specialty soybeans are in the development pipeline or new arrivals to the market. In summary, the market need for differentiation of crops will increase over time. How this occurs depends on the value of each specific crop.

The business plans to bring these new crops to market differ based on their value and the desired level of differentiation or purity required as it moves through the market.

- White corn and high-oil corn are segregated in the market, but rely heavily on the commodity-corn infrastructure. Farmers deliver the corn to a designated elevator, which, in turn, unloads and bins the corn separate from the commodity-corn but uses the same equipment. Measures are

taken to prevent commingling, but minor levels of commingling do not, typically, have a major impact on the corn.

- Conversely to these specialty grains, crops such as food quality soybeans and organic grains are further removed from the commodity stream. Food quality soybeans are typically containerized at the farm level and shipped to the end-user.

- Organic grains are produced and handled in accordance with specific standards.

- The business plans for new food and feed products will vary depending on the level of differentiation required.

- New industrial quality crops, such as those producing chemicals used in making biodegradable plastics, will likely move further away from the commodity stream, a more expensive and difficult business strategy to achieve.

- Pharmaceutical-producing plants will be completely removed from the traditional commodity stream and remain under government regulation and oversight. For example, companies field testing such products, have more than doubled the buffer zones, removed or bagged tassels prior to pollination, and included multiple border rows around the crop. They must prevent unwanted pollen from entering and leaving the field as well as containing the desired trait.

- Finally, we have the new non-biotech niche market that has evolved in response to consumer demand and, in some instances, new regulator requirements of our trading partners. The contractual terms of the non-biotech sale drives the process.

Competitive forces encourage companies to utilize the commodity stream infrastructure as much as possible. Costs dramatically increase as one deviates from the main supply chain. Some firms may designate a specific facility or day of the week for the delivery of non-biotech crop. Others may have farmers deliver directly to a processing plant or loading facility and bypass certain handling systems. Without question, this market is evolving and provides uncertainty and challenges to the grain industry.

Based on survey data collected by the Sparks Companies in 1999, Farm Progress Companies in 2000, and the American Corn Growers Association in 2001, the following is evident: (1) the percentage of elevators that segregate corn has risen from 11% to 26%; and (2) the percentage of elevators that paid a premium for non-biotech commodity has risen from less than 5% to 18%.

Complex Biotech Debate

At this point, I want to stop and briefly focus on how modern biotechnology has and will continue to challenge the United States grain marketing system, especially in terms of an increased need for product differentiation.

1. **U.S. regulatory requirements** - - each biotech event must comply with the United States' coordinated framework and is subject to a zero tolerance prior to approval. Never before did the grain handling system have to deal with the risk of a regulated event appearing in the commodity system.

2. **Asynchronous regulatory approval in the global market - -** crops approved and commercialized in the United States but not approved by all trading partners have and continue to present a real challenge to the grain system.

3. ***Mandatory labeling*** **- -** mandatory labeling is being required by a growing number of governments around the world;

4. **Mandatory traceability - -** the European Commission has proposed mandatory traceability rules; and

5. **Uncertain consumer acceptance - -** uncertain consumer acceptance of foods derived from biotechnology crops in certain markets continues to challenge the marketing system.

These developments threaten many of the efficiencies realized in the current U.S. grain production and processing system. Consequently, the need for and scope of these requirements will continue to be challenged. Regardless of the ultimate regulatory requirements, the need for greater product differentiation in the market appears inevitable.

Advance Notice of Proposed Rulemaking

In light of the numerous changes occurring in the global grain market, the U.S. Department of Agriculture (USDA) sought public comment, via an Advance Notice of Proposed Rulemaking (ANPR), on how USDA can continue to foster the marketing of grains, oilseeds, fruits, vegetables, and nuts in this evolving marketplace. USDA published the ANPR in the November 30, 2000, *Federal Register* and received 2,984 comments.

Of those respondents who commented about market facilitation, they indicated that:

- USDA has been assuming an appropriate role in market facilitation.

- USDA should remain active in international discussions on issues such as standards, tolerances, and labeling.

- USDA should not establish a biotech/non-biotech definition as part of the grading standards.

Some commentors, most of whom represented industry interests, indicated that in the testing arena, USDA could help minimize market inefficiencies caused by inconsistent testing. USDA could accomplish this by:

- Standardizing testing methodologies

- Evaluating testing and laboratory services; and

- Developing new testing and analytical methods for end-use quality attributes.

A number of commentors also indicated that USDA could facilitate marketing by assisting in the development or oversight of identity preservation and other marketing mechanisms.

USDA's experience in providing testing, weighing, and inspection services provides a strong foundation to enhance the accuracy, standardization, and availability of tests for new value-enhanced products. To this end, USDA plans to:

- Evaluate and recommend sampling and testing guidelines for new value-enhanced products.
- Evaluate and validate the performance of rapid test methods used in the commercial marketplace.
- Establish a Proficiency Program for laboratories to improve the reliability of testing.
- Expand international outreach to promote harmonization in sampling and testing methods.

Many commentors also addressed identity preservation (IP) and other marketing mechanisms for value-enhanced grains. They felt that USDA could assist the market by:

- Developing and making available guidelines for quality assurance or IP systems; and
- Extend voluntary process verification and auditing services to include grains and oilseeds. USDA services would:
    - Compliment existing systems, and
    - Enhance confidence and integrity

Conclusion

In conclusion:

- Product differentiation in the grain and oilseed market will continue to expand.
- Crops derived through modern biotechnology will continue to challenge the grain and oilseed markets due to the:
    - Introduction of new products
    - Adherence to new regulatory requirements
- A collective public-private effort is needed to ensure regulatory requirements remain science-based and not market distorting.
- USDA will facilitate future marketing through voluntary programs supportive of greater product differentiation.